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## Chapter 34

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### Art and Photo Credits

## 34.1 Molecular Models

We wish to thank the Cambridge Crystallographic Data Centre (CCDC) and the Fachinformationszentrum Karlsruhe (FIZ Karlsruhe) for allowing Imagineering Media Services (IMS) to access their databases of atomic coordinates for experimentally determined three-dimensional structures. CCDC's **Cambridge Structural Database (CSD)** is the world repository of small molecule crystal structures (distributed as part of the CSD System), and in FIZ Karlsruhe's **Inorganic Crystal Structure Database (ICSD)** is the world's largest inorganic crystal structure database. The coordinates of organic and organometallic compounds in CSD and inorganic and intermetallic compounds in ICSD were invaluable in ensuring the accuracy of the molecular models produced by IMS for this textbook. The authors, the publisher, and IMS gratefully acknowledge the assistance of both organizations. Any errors in the molecular models in this text are entirely the responsibility of the authors, the publisher, and IMS.

*The CSD System: The Cambridge Structural Database: a quarter of a million crystal structures and rising.* Allen, F.H., *Acta Cryst.* (2002), **B58**, 380–388. *ConQuest: New Software for searching the Cambridge Structural Database and visualizing crystal structures.* Bruno, I.J., Cole, J.C., Edgington, P.R., Kessler, M., Macrae, C.F., McCabe, P., Pearson, J., Taylor, R., *Acta Cryst.* (2002), **B58**, 389–397. *IsoStar: IsoStar: A Library of Information about Nonbonded Interactions.* Bruno, I.J., Cole, J.C., Lommerse, J.P.M., Rowland, R.S., Taylor, R., Verdonk, M., *Journal of Computer-Aided Molecular Design* (1997), **11-6**, 525–537.

The Inorganic Crystal Structure Database (ICSD) is produced and owned by Fachinformationszentrum Karlsruhe (FIZ Karlsruhe) and National Institute of Standards and Technology, an agency of the U.S. Commerce Department's Technology Administration (NIST).

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Alamos National Laboratory; **Figure 5.1 "Forms of Energy"**(e) Robert Llewellyn/CORBIS; **Figure 5.2 "Interconversion of Forms of Energy"** David W. Hamilton/Image Bank; **Figure 5.3 "An Example of Mechanical Work"** Bettmann/CORBIS; **Figure 5.10 "Elemental Carbon"** General Electric Corporate Research & Development Center; **Figure 5.12 "An Instant Hot Pack Based on the Crystallization of Sodium Acetate"** Richard Megna/Fundamental Photographs; **Section 5.5.1 "Fuels"** (Measuring crude oil) Reuters/CORBIS; **Figure 5.20 "A Peat Bog"** Brian Lightfoot/Agefotostock

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**Three Allotropes of Phosphorus: White, Red, and Black**" Justin Urgitis/  
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**Chapter 16 "Aqueous Acid–Base Equilibriums":** Opening photo Richard Megna/Fundamental Photographs; **Figure 16.22 "Naturally Occurring pH Indicators in Red Cabbage Juice"** Richard Megna/Fundamental Photographs; **Figure 16.24 "Choosing the Correct Indicator for an Acid–Base Titration"** Richard Megna/Fundamental Photographs; **Figure 16.25 "pH Paper"** Richard Megna/Fundamental Photographs

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